

WHAT IS CLAIMED IS:

1. An electronic battery tester for testing a storage battery, the storage battery including a battery housing and a plurality of electrochemical cells in the battery housing electrically connected to a positive terminal of the battery and a negative terminal of the battery, the tester comprising:

- a positive connector coupled to the positive terminal of the battery;
- a negative connector coupled to the negative terminal of the battery;
- a temperature sensor configured to measure a temperature of an individual electrochemical cell of the plurality of electrochemical cells of the battery; and
- processing circuitry, coupled to the temperature sensor, configured to test the battery using the first and second connectors and to provide an output related to the temperature measured by the temperature sensor.

2. The electronic battery tester of claim 1 wherein the temperature sensor is a non-contact temperature sensor.

3. The electronic battery tester of claim 2 wherein the non-contact temperature sensor is an infrared temperature sensor.

4. The electronic battery tester of claim 1 wherein the processing circuitry is configured to provide a condition of the electrochemical cell of the plurality of electrochemical cells based on the temperature measured by the temperature sensor.

5. The electronic battery tester of claim 4 wherein the condition of the electrochemical cell of the plurality of electrochemical cells relates to the presence or absence of a short circuit condition in the electrochemical cell.

6. The electronic battery tester of claim 4 wherein the condition of the electrochemical cell of the plurality of electrochemical cells relates to the presence or absence of an open circuit condition in the electrochemical cell.

7. The electronic battery tester of claim 4 wherein the processing circuitry is configured to provide a condition of the electrochemical cell of the plurality of electrochemical cells based on the temperature measured by the temperature sensor by comparing the temperature measured by the temperature sensor with a predetermined threshold temperature.

8. The electronic battery tester of claim 7 wherein the predetermined threshold temperature is stored in a memory.

9. The electronic battery tester of claim 1 wherein the temperature sensor is a contact-type temperature sensor.

10. The electronic battery tester of claim 9 wherein the contact-type temperature sensor comprises a thermocouple.

11. The electronic battery tester of claim 9 wherein the contact-type temperature sensor comprises a resistance temperature detector (RTD) sensor.

12. The electronic battery tester of claim 9 wherein the contact-type temperature sensor comprises a solid-state sensor.

13. The electronic battery tester of claim 9 wherein the contact-type temperature sensor comprises a thermistor.

14. The electronic battery tester of claim 1 wherein the positive connector is a first Kelvin connector and the negative connector is a second Kelvin connector.

15. A battery charger including the electronic battery tester of claim 1.

16. An electronic battery charger for charging a storage battery, the storage battery including a battery housing and a plurality of electrochemical cells in the battery housing electrically connected to a positive terminal of the battery and a negative terminal of the battery, the charger comprising:

- a positive connector coupled to the positive terminal of the battery;

- a negative connector coupled to the negative terminal of the battery;

- a temperature sensor configured to measure a temperature of an individual electrochemical cell of the plurality of electrochemical cells of the battery; and

- processing circuitry, coupled to the temperature sensor, configured to charge the battery using the first and second Kelvin connectors and to provide an output related to the temperature measured by the temperature sensor.

17. The electronic battery charger of claim 16 wherein the temperature sensor is a non-contact temperature sensor.

18. The electronic battery charger of claim 17 wherein the non-contact temperature sensor is an infrared temperature sensor.

19. The electronic battery charger of claim 16 wherein the processing circuitry is configured to provide a condition of the electrochemical cell of the plurality of electrochemical cells based on the temperature measured by the temperature sensor.

20. The electronic battery charger of claim 19 wherein the condition of the electrochemical cell of the plurality of electrochemical cells relates to the presence or absence of a short circuit condition in the electrochemical cell.

21. The electronic battery charger of claim 19 wherein the condition of the electrochemical cell of the plurality of electrochemical cells relates to the presence or absence of an open circuit condition in the electrochemical cell.

22. The electronic battery charger of claim 19 wherein the processing circuitry is configured to provide a condition of the electrochemical cell of

the plurality of electrochemical cells based on the temperature measured by the temperature sensor by comparing the temperature measured by the temperature sensor with a predetermined threshold temperature.

23. The electronic battery charger of claim 22 wherein the predetermined threshold temperature is stored in a memory.

24. The electronic battery charger of claim 16 wherein the temperature sensor is a contact-type temperature sensor.

25. The electronic battery charger of claim 24 wherein the contact-type temperature sensor comprises a thermocouple.

26. The electronic battery charger of claim 24 wherein the contact-type temperature sensor comprises a resistance temperature detector (RTD) sensor.

27. The electronic battery charger of claim 24 wherein the contact-type temperature sensor comprises a solid-state sensor.

28. The electronic battery charger of claim 24 wherein the contact-type temperature sensor comprises a thermistor.

29. An portable battery tester for testing a storage battery, the storage battery including a battery housing and a plurality of electrochemical cells in the battery housing electrically connected to a positive terminal of the battery and a negative terminal of the battery, the tester comprising:

- a positive connector coupled to the positive terminal of the battery;

- a negative connector coupled to the negative terminal of the battery;

- a moveable temperature sensor configured to measure a temperature of an individual electrochemical cell of the plurality of electrochemical cells of the battery; and

- processing circuitry, coupled to the temperature sensor, configured to test the battery using the first and second connectors and to provide an output related to the temperature measured by the temperature sensor.

30. The portable battery tester of claim 29 wherein the moveable temperature sensor is a moveable non-contact temperature sensor.

31. The portable battery tester of claim 29 wherein the moveable temperature sensor is a moveable contact-type temperature sensor.